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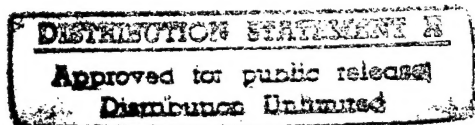
ON CERTAIN NEW FACTORS OF BLOOD COAGULATION  
IN PATIENTS WITH IMPAIRED CORONARY CIRCULATION

- USSR -

by V. M. Panchenko

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ON CERTAIN NEW FACTORS OF BLOOD COAGULATION  
IN PATIENTS WITH IMPAIRED CORONARY CIRCULATION

Following is a translation of an article by  
Candidate of Medical Sciences V. M. Panchenko  
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From the Chair of the Fourth Therapy (Head --  
Corresponding Member of the Acad. Med. Sci.  
USSR, Prof. P. I. Yegorov) of the Central In-  
stitute for the Advanced Training of Physi-  
cians

In the present report we cite data on the quantity of  
factor VII of blood coagulation (proconvertin) in patients  
with impaired coronary circulation.

Alexander and Landver elicited a new factor present  
in blood serum and differing markedly, according to its pro-  
perties, from proaccelerin, prothrombin, thrombin, and  
thromboplastin. It was named the serum accelerator of pro-  
thrombin transformation. This factor is known in the lit-  
erature as pro-convertin-convertin, or factor VII. Its dis-  
tinguishing characteristic is its preservative stability.  
This enabled Stefanini to name it the stable factor.

In the human organism, according to Auren, factor VII  
is present in an inactive state due to its bond with an  
inhibitor. The active form of factor VII is formed under  
the effect of thromboplastin in the presence of calcium  
salts. It is synthesized in the liver with the participation  
of Vitamin K. We determined the coagulation factor VII by  
the Alexander method.

A total of 56 patients suffering from impaired coron-  
ary circulation were investigated. Of these four were in  
the age-group 30 to 40 years, 18 -- 41 to 50, 23 -- 51 to  
60, and 11 -- 61 years, and over. Depending on the basic  
disease, they were divided as follows: In 20 patients it ap-  
peared against the background of hypertension disease, in 32  
-- against the background of atherosclerotic myocardiocleros-  
is and coronary sclerosis, in four -- against the background

of general neurosis. Among them 30 individuals suffered from stenocardia, 14 had a recent myocardial infarct, 12 gave a history of myocardial infarct in the past and suffered from chronic coronary insufficiency.

The characteristics of the size of factor VII are shown in Table 1.

As seen in Table 1, in the majority of patients this factor was either normal or reduced. An increase of its content was noted basically in patients with a recent myocardial infarct.

Table 1

Disease	Number of patients with varying quantity of factor VII		
	reduced	normal	increased
Stenocardia.....	12	14	4
Recent myocardial infarct .....	--	6	8
Chronic coronary insufficiency following an infarct ..	2	7	3

Thus, we may consider that the increase in factor VII is not a regular symptom of coronary insufficiency, and that its tendency toward an increase is observed only in patients with a recent myocardial infarct.

We were interested in the question of the effect of anticoagulants of the dicoumarin type on the quantity of factor VII. Our data showed that in analogy with prothrombin it is sensitive to anticoagulants and, at a decrease of prothrombin below 50 percent, factor VII was absent in a number of cases.

We determined also the fibrinogen content in all patients.

The comparative characteristics of factor VII and fibrinogen is presented in Table 2.

Table 2 shows that increased content of fibrinogen in coronary insufficiency patients is encountered more frequently than the increase of factor VII. It is observed particularly clearly in patients with a recent myocardial infarct.

Patient B., 86 years of age, in the clinic from 7 to 23 March 1959. Diagnosis: atherosclerotic myocardiosclerosis. coronary sclerosis, recent infarct of the anterior-lateral

Table 2

Disease	Number of patients			
	Factor VII		Fibrinogen	
	normal or increased	increased	normal or increased	increased
Stenocardia.....	26	4	23	2
Recent myocardial infarct.....	6	8	1	13
Chronic coronary in- sufficiency follow- ing an infarct....	9	3	4	8

wall and septum. Acute cardiac aneurism.

During the period of 24 hours the patient had severe retrosternal pain which could not be relieved with narcotics. The ECG showed an infarct of the anterior-lateral wall and septum. For three days there was a rise in temperature (up to 38°). Blood: leucocytes 20,100 to 14,000; prothrombin 80 percent, fibrinogen 9.7 percent (normal 4.9 percent), factor VII 45 percent (normal 30 percent). The patient was receiving dicoumarin. Prothrombin was reduced to 60 percent, factor VII -- to 18 percent, fibrinogen -- to 10.6 percent.

On the 17th day from the onset of the disease the patient died. The autopsy confirmed the diagnosis.

Thus, in a patient with an extensive recent myocardial infarct the content of fibrinogen and factor VII was increased. Under the effect of anticoagulants the content of factor VII was reduced, whereas that of fibrinogen showed a tendency toward an increase, apparently changing in conjunction with the gravity of the disease.

### Conclusions

1. Factor VII of blood coagulation in patients with impaired coronary circulation does not change substantially. Only in patients with a recent infarct one can observe a certain tendency toward an increase.

2. An increased fibrinogen content in patient with a recent myocardial infarct is a more regular symptom than the increase of factor VII.

3. Anticoagulants of the dicoumarin type affect factor VII in reducing its quantity, in analogy with a similar effect on prothrombin.

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